The Deſcription and Uſe of a PROPORTIONAL CAMERA OBSCURA, *with a* SOLAR MICROSCOPE *adapted thereto.*

Invented and Sold by B. MARTIN *in* Fleet-ſtreet.

72-931

THE Deſign of this Inſtrument is to gratify the Curious in the Arts of Deſigning, Drawing, and other optical Purpoſes; for by this Means they may be enabled to draw the Repreſentation of any Object in any Proportion to the Life. For this Purpoſe there are two Glaſſes to be uſed, one of *fifteen Inches* focal Diſtance, and the other of *ten.* When the firſt of theſe is ſcrewed on, the ſliding Part is to be drawn out to the Proportion required expreſſed upon the printed Paper; for example, ſuppoſe you would have the Proportion of the Object to the Image, as *ten to one,* then draw out the ſliding Part to thoſe Numbers on the printed Paper, which are thus expreſſed 10——1 in the Column of Figures under the fifteen Inch glaſs; this done, you carry the Inſtrument to or from the Object till the Image appears perfect, which will then be a tenth Part of the Object in Length and Breadth.

Again, Suppoſe, without moving out of your Place, you take the Image of any Object before you, then look on the printed Paper, and you will ſee the Proportion between the Object and Image expreſſed on the ſame Scale as before.

But with this Glaſs you cannot go beyond the Proportion of *three to one,* and then the Glaſs will be drawn out to the Diſtance of twenty Inches, as you will ſee by the Figures on the Middle Scale of Inches.

And as there may be oftentimes occaſion to have the Image in a larger Proportion to the Object than *one to three,* it will be neceſſary to take away the former Glaſs and ſcrew on another *ten inches* focal Diſtance, by this Means you will have all the Proportions from *one to three* up to *Equality,* or where the Image will be equal to the Object; theſe Proportions are all expreſſed in the Scale, or third Column, under —— *Glaſs* 10 *Inches Focus:* thus for Example, if you would have the Proportion between the Image and Object, as 1 to 2, then place the Drawer to the Numbers 20——10 on the Paper and it is done, or if you would have the Image juſt of the ſame Dimenſions with the Object, you muſt draw the ſliding Part out to the End of the Scale on the Paper, the Glaſs will be then 20 Inches diſtant from the End, as you will ſee on the Scale of Inches in this Caſe. Alſo the Object itſelf is juſt 20 Inches from the Glaſs.

As to the SOLAR MICROSCOPE any ſmall Object is magnified by it at Pleaſure, for the Glaſs being one fifth of an Inch focal Diſtance, it will follow, that when the ſliding Part is put quite home, as it will be then 14 Inches from the End, the Length and Breadth of the Image will be 5 times 14, or 70 times greater than that of the Object, and the Surface of it will be magnified 4900 times: Thus for Example, ſuppoſe a *Flea* were the tenth of an Inch long, its Image would be 70 tenths, that is ſeven Inches long, and the Surface of his Body would be increaſed 4900 times.

But ſuppoſing the Object be extremely ſmall; for inſtance, the $\frac{1}{100}$ Part of an Inch, then may the Slider be drawn out till the Glaſs be twenty Inches from the End, and the Image will then be 5 times 20, or 100 times larger than the Object, that is, the Image will be one Inch in Length, and the Surface will be magnified 10,000 times; the Sun-beams will be col-
ted upon the Object by the Glaſs at the End, to which it may be re-
ed by a common Looking-Glaſs, or the End of the Box raiſed up till
Sun-beams paſs thro' it. A little Uſe will make this Inſtrument very
and as it is the firſt Thing of this Kind ever propoſed to the Public,
ced will be very acceptable.

Wilſon's Microſcope ſcrews off, to be applied as in common Uſe,
r Magnifier $\frac{1}{10}$ of an Inch focal Diſtance; then it anſwers all the
a ſingle Miſcroſcope. *Price 2l. 12s. 6d.*